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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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49455	7590	09/07/2006	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			PICH, PONNOREAY	
			ART UNIT	PAPER NUMBER
			2135	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/833,793	KO ET AL.	
	Examiner	Art Unit	
	Ponnoreay Pich	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13-18,20-30,32-35 and 41-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 13-18, 20-30, 32-35 and 41-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/22/2006 has been entered. As per the interview held on 7/26/2006, the rejections based on Orrin are withdrawn. However, noted new rejections presented below as a result of newly discovered prior art. Any well known art statements made in the prior office actions not specifically and adequately traversed by applicant are taken as admittance of prior art as per MPEP 2144.03.

Claims 1, 3-11, 13-18, 20-30, 32-35 and 41-47 are pending.

Information Disclosure Statement

The IDS submitted by applicant on 2/15/2006 has been considered.

Claim Rejections - 35 USC § 112

Claim 47 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Claim 47 recites encrypting a first region of a text, as a first encryption key.... It also recites extracting the second encryption key from the decrypted first region.... It would appear that what is recited in the first limitation might be a typo and instead should recite "encrypting a first region of a text that has a

second encryption key....” This would be more consistent with what is disclosed in the specification and recited in other claims that are similar in nature to what is recited in claim 47. The examiner will make art rejections based on the assumption of what is currently recited being a typo. Clarification by applicant is respectfully requested.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 41-43 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 41:

Claim 41 is directed towards a receiver comprising an authenticator and a decryptor. Both these components can be implemented via software alone, thus claim 41 is not statutory since it is directed towards software per se.

Claim 42:

Claim 42 is dependent on claim 41 and also do not recite any hardware, thus is also directed towards software per se, thus is not statutory.

Claim 43:

As per claim 43, an updated search in the art reveals that the term “information appliance” can refer to a software application, thus claim 43 is also not statutory since it is directed towards software per se.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-4, 16, 13, 18, 21, 30, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Richards (US 6,385,723).

Claim 1:

Richards discloses:

1. Encrypting a first region of a text containing a second encryption key using a first encryption key (Fig 5, items 503, 507 and Fig 6, item 615). *The first encryption key is public key, mkd_pk. The second encryption key is key data 615, seen in Figure 6.*
2. Encrypting a second region of the text using the second encryption key (col 6, lines 22-26 and col 7, lines 16-44). *Note that the AU contains encrypted regions that are encrypted using the symmetric key contained in the KTU.*
3. Transmitting a cipher text comprising the encrypted first and second regions (col 10, lines 10-13).

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4. Transmitting the first encryption key, region segmentation information for segmenting the text into the first region and the second region, and information related to the second encryption key (col 6, lines 36-46; col 7, lines 33-37; col 10, lines 5-13; and Fig 6).
5. Decrypting the first region of the transmitted cipher text using the transmitted first encryption key and the transmitted region segmentation information (Fig 10, item 1003).
6. Extracting the second encryption key from the first region using the transmitted information relating to the second encryption key (col 11, lines 12-24 and Fig 10, item 1005-1009).
7. Decryption the second region of the transmitted cipher text using the extracted second encryption key (col 11, lines 12-24 and Fig 10, item 1005-1009).

Claim 3:

Richards further discloses wherein the first encryption key comprises an encryption key for use with a common key encryption method (col 6, lines 22-26 and col 7, lines 16-44). Note that symmetric key encryption and common key encryption are synonymous terms in the art of encryption.

Claim 4:

Richards further discloses the first encryption key comprises a public key for use with a public key encryption method (col 8, lines 40-42).

Claim 16:

Richards further discloses wherein the region segmentation information comprises information on a size of the first region of the text (Fig 6, item 613).

Claim 13:

Claim 13 is directed towards a copy protection method comprising decrypting and extracting steps substantially similar to the decrypting and extracting steps recited in claim 1. As such, claim 13 is rejected for the substantially the same reasons given above in claim 1.

Claim 18:

Claim 18 is directed towards a computer readable medium encoded with processing instructions for implementing a method substantially similar to the method recited in claim 1 and is rejected for substantially the same reasons given in claim 1.

Claim 21:

Richards further discloses wherein the first encryption key comprises an asymmetric key for use with an asymmetric key encryption method (col 8, lines 40-42).

Claim 30:

Claim 30 is directed towards a computer readable medium encoded with processing instructions for implementing a method substantially similar to the method recited in claim 13 and is rejected for substantially the same reasons given in claim 13.

Claim 46:

Claim 46 recites a method substantially similar to what is recited in claim 1 and is rejected for the same reasons. The difference is that claim 46 additionally recites that

the first region of text including data to be extracted as a second encryption key. This limitation too is disclosed by Richards (Fig 6, item 615).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7-11, 17, 15, 20, 22, 24-28, 32, 35, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards (US 6,385,723).

Claim 5:

Richards does not explicitly disclose wherein the second encryption key is smaller than the first encryption key where a common key encryption method is used. However, note that the second encryption key disclosed by Richards is a symmetric/common encryption key while the first is a public key. The examiner asserts that it is common knowledge in the art that common encryption keys are typically smaller than public encryption keys. As such, it would have been obvious to one skilled in the art to have the second encryption key smaller than the first encryption key in Richards invention. One skilled would have been motivated to do so because it is traditional that common keys are smaller than public keys. This allows faster encryption

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using symmetric encryption scheme while more secure encryption using asymmetric encryption scheme.

Claim 7:

Richards further discloses wherein the information related to the second encryption key includes size information of the second encryption key (Fig 6, item 313).

Richards does not explicitly disclose that the information also includes position information of the second encryption key. However, the examiner asserts that the limitation was well known in the art at the time application's invention was made. Further, it would have been obvious to include key position information as part of the information in Richards's invention. One skilled would have been motivated to do so because key position information is needed to determine where the key is in the KTU so that it could be extracted to decrypt the AU.

Claim 8:

Richards does not explicitly disclose wherein the position and size information of the second encryption key are fixed. However, the limitation was well known in the art. At the time applicant's invention was made, it would have been obvious to one skilled in the art to have the position and size information of the second encryption key fixed in Richards's invention. One skilled would have been motivated to do so because whether one made the position and size information of the second encryption key fixed or varied is an arbitrary design choice that is up to the preference of each designer. It is noted that applicant's specification also does not disclose any particular reason to choose one scheme over the other.

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Claim 9:

Richards does not explicitly disclose wherein the position and size information of the second encryption key are varied. However, the limitation was well known in the art. At the time applicant's invention was made, it would have been obvious to one skilled in the art to have the position and size information of the second encryption key varied in Richards's invention. One skilled would have been motivated to do so because whether one made the position and size information of the second encryption key fixed or varied is an arbitrary design choice that is up to the preference of each designer. It is noted that applicant's specification also does not disclose any particular reason to choose one scheme over the other.

Claim 10:

Richards does not explicitly disclose wherein the first region of the text is smaller than the second region of the text. However, the examiner asserts that encryption schemes wherein a large region of text is encrypted using a symmetric key while a smaller region is encrypted using a public key was well known in the art at the time applicant's invention was made. Note that the smaller region typically contains the symmetric key used to encrypt the larger region. It would have been obvious to one of ordinary skill in the art to further modify Richard's invention such that the first region of the text is smaller than the second region of the text. One of ordinary skill would have been motivated to do so because this would allow larger regions to be encrypted faster using the symmetric key while the more costly asymmetric encryption scheme could be

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used to encrypt the smaller region containing the symmetric key, thus providing greater security to the storage of the symmetric key.

Claim 11:

Richards does not explicitly disclose wherein the region segmentation information comprises information on a starting address of the second region of the text. However, the examiner asserts that it was well known in the art to have region segmentation information comprise information on a starting address of text regions. At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Richards's invention according to the limitations recited in claim 11. One skilled would have been motivated to do so because it would allow proper decryption of the encrypted regions.

Claim 17:

Richards does not explicitly disclose wherein the first encryption key comprises an encryption key that is 56 bits or more. However, note that the first encryption key disclosed by Richards is a public encryption key. It was well known in the art that public encryption keys are typically at least 512 bits in length. At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Richards's invention such that the first/public key disclosed by Richards was 56 bits or more. One skilled would have been motivated to do so because public keys are typically long to ensure greater security.

Claim 15:

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Claim 15 recites limitations that are a combination of what are recited in claims 5 and 10 and are rejected for the same reasons. Note that there is a slight difference in the wording of the limitation of claim 5 and a limitation recited in claim 15. Claim 5 recites that the second encryption key is smaller than the first encryption key while claim 15 recites that the size of the first encryption key is larger than the size of the second encryption key. The meaning is essentially the same, however.

Claim 20:

Richards does not explicitly disclose wherein the first encryption key comprises a symmetric key having 56 bits or more. However, symmetric keys comprising 56 bits or more were well known in the art at the time applicant's invention was made. It would have been obvious to one skilled in the art to modify Richards's invention such that the first encryption key comprises a symmetric key having 56 bits or more. One skilled would have been motivated to do so because use of a symmetric encryption key for the first encryption key would allow faster encryption than use of an asymmetric key scheme.

Claim 22:

Claim 22 recites a limitation substantially similar to what is recited in claim 5 and is rejected for the same reasons.

Claim 24:

Claim 24 recites a limitation substantially similar to what is recited in claim 7 and is rejected for the same reasons.

Claim 25:

Claim 25 recites a limitation substantially similar to what is recited in claim 8 and is rejected for the same reasons.

Claim 26:

Claim 26 recites a limitation substantially similar to what is recited in claim 9 and is rejected for the same reasons.

Claim 27:

Claim 27 recites a limitation substantially similar to what is recited in claim 10 and is rejected for the same reasons.

Claim 28:

Richards does not explicitly disclose sending information on a starting address of the second region through a safe transmission path. However, the sending information to receiver about a region's starting address was well known in the art. It was also well known to send information of sensitive nature through a safe transmission path. At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Richards's invention according to the limitations recited in claim 28. One skilled would have been motivated to send information on a starting address of the second region so that the second region could be properly decrypted. One skilled would have been motivated to use a safe transmission path for the sending of information so that unauthorized parties would not receive such information which they could then use to obtain secret information that has been secured.

Claim 32:

Richards does not explicitly disclose wherein the region segmentation information, the information related to the second key, and the first encryption key are received through a safe transmission path. However, sending information, especially confidential information, through a safe transmission path was well known in the art at the time applicant's invention was made. Region segmentation information, the information related to the second key, and the first encryption key are confidential information as only authorized parties should have access to them since they would allow decryption of privileged information. As such, at the time applicant's invention was made, it would have been obvious to one of ordinary skill in the art to modify Richards's invention according to the limitations recited in claim 32. One of ordinary skill would have been motivated to do so because sending region segmentation information, the information related to the second key, and the first encryption key through a safe transmission path would increase security and prevent unauthorized parties from gaining access to privileged information.

Claim 35:

Claim 35 recites limitation substantially similar to what is recited in claim 35 and is rejected for the same reasons.

Claim 47:

Claim 47 recites a method substantially similar to what is recited in claim 1 and is rejected for substantially the same reasons. The difference is where claim 1 recites "encrypting a first region of a text containing a second encryption key using a first encryption key", claim 47 recites "encrypting a first region of a text that has a second

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encryption key, after a second encryption key is extracted from the first region of the text". However, one skilled should appreciate that to be able to use the second encryption key to encryption the second region of text as later recited in both claims, one would need to extract the second encryption key from the first region of text before encrypting the second region as is recited in claim 47. As such, it would have been obvious to one skilled in the art to first extract the second key from the first region before encrypting the second region using the second encryption key. One skilled would have been motivated to do so because one needs to obtain the second key before it can be used for encryption of the second region.

Claims 6, 14, 23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards (US 6,385,723) in view of McGough (US 6,445,797).

Claim 6:

Richards does not explicitly disclose wherein a size of the first encryption key is fixed and a size of the second encryption key is varied by a transmission unit within the first region. However, the examiner asserts that keys of fixed and varied lengths were well known in the art at the time the applicant's invention was made.

Further, McGough discloses a cryptographic system employing the use of two keys. The size of the first encryption key is fixed (col 4, lines 59-61) and the size of the second encryption key is variable (col 4, lines 39-46). In light of McGough's teachings, it would have been obvious to one of ordinary skill in the art at the time the applicant's

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invention was made to have modified Richards's invention according to the limitations recited in claim 6. One of ordinary skill would have been motivated to do so as McGough discloses that his teachings would guarantee a mathematical and process impossibility of ever discovering or deriving the original key from the message key, making the only attack point of the system of no value (col 4, lines 46-50).

Claim 14:

Claim 14 recites limitations substantially similar to what is recited in claim 6 and is rejected for the same reasons.

Claim 23:

Claim 23 recites a limitation substantially similar to what is recited in claim 6 and is rejected for the same reasons.

Claim 34:

Claim 34 recites limitation substantially similar to what is recited in claim 6 and is rejected for the same reasons.

Claims 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards (US 6,385,723) in view of applicant's admittance of prior art.

Claim 29:

Richards does not explicitly disclose sending a cipher text comprising the first and second regions through an unsafe transmission path; and obtaining the safe transmission path through authentication operations. However, applicant discloses that

it was well known at the time the applicant's invention was made to send cipher text through an unsafe transmission path and obtaining the safe transmission path through authentication operations (see specification, p3, paragraph 9).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have modified Richard's invention according to the limitations recited in claim 29 because the text is already encrypted, so sending it through an unsafe path would be faster than sending it through a safe path. Further, using authentication to obtain the safe transmission path would ensure that the path is actually safe, i.e. that an imposter is not asking for the secure path.

Claim 33:

Richards does not explicitly disclose receiving the encrypted text through an unsafe transmission path. However, applicant discloses that it was common in the art at the time applicant's invention was made to have received the encrypted text through an unsafe transmission path (specs, p3, paragraph 9). It would have been obvious to one of ordinary skill to have modified Richards's invention according to the limitations recited in claim 33 because it would unsafe transmission paths are typically faster than safe paths and it would allow the message to be received faster.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(f) he did not himself invent the subject matter sought to be patented.

Claims 41-42 are rejected under 35 U.S.C. 102(f) as anticipated by applicant's admittance of prior art or, in the alternative, under 35 U.S.C. 103(a) as obvious over applicant's admittance of prior art in view of Richards (US 6,385,723).

Claim 41:

Claim 41 is an apparatus claim directed towards a receiver comprising an authenticator and a decryptor. Note that applicant discloses that a receiver which comprises an authenticator and a receiver were well known in the prior art as being part of a conventional encryption apparatus (specs, p2, paragraph 4 and Fig 1). Note that claims towards an apparatus must distinguish from the prior art in terms of structure rather than function (MPEP 2114). Claim 41 stating that the authenticator is "to obtain..." and the decryptor is "to decrypt..." describes functions of the components of the receiver apparatus (i.e. the authenticator component and decryptor component), thus in the strictest sense does not have any patentable weight. As such, claim 41 is rejected under 102(f) since applicant admits that a receiver comprising an authenticator and a decryptor was well known in the prior art as being part of a conventional encryption apparatus and as such was not invention by the inventors of the present application.

It should be noted that the functions of the authenticator components recited in claim 41 is similar to the methods described in claims 32 and 13. Claims 32 and 13 were rejected over Richard and official notice by the examiner. As such, alternatively

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claim 41 is also rejected under 35 USC 103 over applicant's admittance of prior art in view of Richards (and official notice by the examiner). It would have been obvious to modify the prior art system seen in Figure 1 of applicant's specification such that the authenticator obtains a safe transmission path through which a first encryption key, region segmentation information, and information related to a second encryption key are received. One skilled would have been motivated to do so because this would increase security in the prior art system by sending these information needed for decryption through a safe transmission path. It would have been obvious to modify the decryptor to perform decryption as recited in claim 41 according to the decryption method described by Richards in claim 13. One skilled would have been motivated to do so because Richards's teachings would provide for a key transfer and authentication technique that provides allows for secure transfer of smart card applications which may be loaded onto smart cards (col 2, lines 50-54). Note that Richards discloses that it is beneficial to store multiple applications on the same IC card (col 1, lines 55-56).

Claim 42:

Claim 42 further recites limitations which describes materials worked on by the receiver apparatus of claim 41. However, the patentability of an apparatus depends on its structure, not any material worked on by the apparatus (MPEP 2115). As such, the limitations recited in claim 42 does not bear any patentable weight and claim 42 is rejected for the same reasons given in claim 41. Further, it should be noted that the limitations recited in claim 42 are a combination of what are recited in claims 7 and 33 and can be rejected for the same reasons given in claims 7 and 33.

Claims 43-45 are rejected under 35 U.S.C. 103(a) as obvious over applicant's admittance of prior art in view of Richards (US 6,385,723).

Claim 43:

Neither applicant's admittance of prior art nor Richards explicitly states that the receiver comprises an information appliance. However the examiner asserts that computers being receivers in a cryptographic system was well known at the time the applicant's invention was made. Computers are information appliances. It would have been obvious to one of ordinary skill to further modified the invention as recited in claim 42 such that the receiver is an information appliance/computer. One skilled would have been motivated to do so because it would allow for automated cryptographic processing and because using computers as receivers which does authentication and decryption was common in the art.

Claim 44:

Neither applicant's admittance of prior art nor Richards explicitly states the receiver comprises a computer. However the examiner asserts that computers being receivers in a cryptographic system was well known at the time the applicant's invention was made. It would have been obvious to one of ordinary skill to have modified the invention as recited in claim 42 such that the receiver is a computer because it would allow for automated cryptographic processing.

Claim 45:

Neither applicant's admittance of prior art nor Richards explicitly states wherein the receiver comprises a hardware server. However, hardware servers were well known in the art at the time applicant's invention was made. It would have been obvious to one of ordinary skill to have modified the invention as recited in claim 42 such that the receiver is a hardware server because it would allow for secure communication between a client and server.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ponnoreay Pich whose telephone number is 571-272-7962. The examiner can normally be reached on 9:00am-4:30pm Mon-Fri.

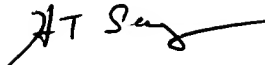
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Ponnoreay Pich
Examiner
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HOSUK SONG
PRIMARY EXAMINER

PP